

REMARKS

Applicants respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 1-14 have been rejected and Claims 15-22 have been allowed. Claims 1-14 have been cancelled without prejudice, and new Claims 23-37 have been added. No new matter has been added. Accordingly, Claims 15-37 will be pending in the present application upon entry of this Amendment and Reply.

Claims 1-14 have been cancelled without prejudice. Applicants expressly reserve the right to pursue the subject matter recited in cancelled Claims 1-14 in further continuing applications.

The Title of the application has been amended to more clearly identify the subject matter recited in the claims of the present application.

A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Claim Rejections – 35 U.S.C. § 102(b)

On page 4 of the Office Action, Claims 1-6, 9-11, and 14 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,159,641 to Kawano et al. or U.S. Patent No. 5,549,995 to Tanaka et al. Applicants respectfully traverse this rejection.

Claims 1-6, 9-11, and 14 have been cancelled without prejudice. Accordingly, the Applicants submit that the rejection of Claims 1-6, 9-11, and 14 should be withdrawn.

The Applicants note that on page 2 of the Office Action, the Examiner stated:

The applicant argues that while the cited prior art to Tanaka et al. and Kawano et al. does disclose opening patterns etched to different depths (see Figure 3E), it does not identically disclose a mask that includes trenches having different depths such that light of a first wavelength may be phase-shifted utilizing

trenches having a first depth and light of a second wavelength may be phase-shifted utilizing trenches having a second depth.

The Applicants note that Kawano et al. has not previously been cited by the Examiner in this patent application, and that therefore, the Applicants have not addressed the Kawano et al. reference.

Claim Rejections – 35 U.S.C. § 103(a)

On page 5 of the Office Action, Claims 1-14 were rejected as being obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,068,951 (“Pierrat et al.”) or U.S. Patent No. 5,700,605 (“Ito et al.”) in view of U.S. Patent No. 5,549,995 (“Tanaka et al.”).

Claims 1-14 have been cancelled without prejudice. Accordingly, the Applicants submit that the rejection of Claims 1-14 should be withdrawn.

Claim Rejections – Double Patenting

On page 6 of the Office Action, Claims 1-14 were rejected under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 6,593,039 to Kim in view of Tanaka et al.

As described above, Claims 1-14 have been cancelled without prejudice. Accordingly, the Applicants submit that the rejection of Claims 1-14 should be withdrawn.

New Claims

New Claims 23-37 have been added to present claims of varying scope. No new matter has been added. The Applicants submit that new Claims 23-37 are allowable over the references cited by the Examiner in the instant Office Action.

For example, new independent Claim 23 recites, among other limitations, “comparing patterns provided in the layer of material by the light having the first wavelength and by the light having the second wavelength,” which is not disclosed, taught, or suggested by the cited references. New independent Claim 33 recites “analyzing the layer of photoresist material to determine the effects of the light having the first wavelength and of the light having the second wavelength,” which is not disclosed, taught, or suggested by the cited references.

One exemplary embodiment is described at paragraphs [0029]-[0030] of the present application, which states:

[0029] Referring again to FIG. 2, mask 26 is used for testing the effectiveness of different lights of photolithographic machine 20 on resist layer 32 of semiconductor wafer 30. Photolithography machine 20 provides a first light having a first wavelength through first trenches 50, whereby first trenches 50 (see FIG. 6) phase-shift this light before it reaches photoresist 32. Next, a second light having a second wavelength longer than the first wavelength is provided from light source 22 through trenches 52, which phase-shift the light before the light reaches photoresist 32. Both wavelengths of light have now provided a pattern in resist 32 of semiconductor wafer 30, which can be compared using conventional viewing systems e.g., a scanning electron microscope (SEM) to compare the effect on the photoresist layer 32 of the light having the first wavelength to the effect on the photoresist layer 32 of the light having a second wavelength.

[0030] Advantageously, one may utilize the mask and system shown herein for testing or research and development to compare the capabilities of the longer wavelength printing process versus the shorter wavelength printing process. Further, two masks need not be fabricated, which saves cost, materials, and time. Further still, a direct side-by-side comparison of the two different wavelength printing processes may be observed. Further yet, since a mask with dual wavelength capability has a section for each wavelength manufactured on the same substrate, the manufacturing offset or bias will be the same.

None of the cited references appear to disclose, teach, or suggest all limitations of new independent Claims 23 or 33. Accordingly, consideration and allowance of Claims 23 and 33 (and their associated dependent Claims 24-32 and 34-37) is respectfully requested.

* * *

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. The Applicants request consideration and allowance of all pending Claims 15-37.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

Date 12/18/2004

By 

FOLEY & LARDNER LLP
Customer Number: 26371
Telephone: (414) 297-5564
Facsimile: (414) 297-4900

Marcus W. Sprow
Attorney for Applicants
Registration No. 48,580